

**Indian Health Service
Eastern Arizona District Office
Office of Environmental Health and Engineering
Division of Sanitation Facilities Construction
Hopi Arsenic Mitigation Project (HAMP)
Projects PH 11-E55, PH 12-E73, & PH 14-U62
10% Design Review Meeting Minutes**

Date: January 15, 2016

Present: Robert Lorenz, Brad Rea, Tom Heintzman, James Carter, Lydell Yazzie, & Jesse DeCoteau

The purposes of the meeting were to:

- Review the existing Preliminary Engineering Report (PER) and related documents per PHX Area Guideline 2-38 with respect to identifying the scope of construction activities for project PH 11-E55, PH 12-E73, and PH 14-U62 and how they relate to the HAMP.
- Discuss HAMP costs to-date, funding sources, existing funds, and required remaining funds.
- Discuss identified constructability issues associated with certain parts of the HAMP as scoped in the PER.
- Review validity of line item costs in the PER, especially those associated with providing electrical services at the well sites.
- Discuss alternative of elevated water storage tank near the Hopi Cultural Center.
- Identify what items discussed as alternatives are worth investing significant resources in.
- Provide comments to Jesse on the 10% plan set for PH 11-E55, PH 12-E73, and PH 14-U62.

Significant items identified and discussed include:

- Constructability of Second Mesa gap main.
 - Long cuts longitudinally down asphalt BIA Route 17 OR going over the side of the cliff parallel to the existing Toreva Lagoon sewer main. Are PER costs valid and are either alternatives advised?
- Constructability of First Mesa gap main.
 - Cliff like grades with sandstone at surface and boulders on both sides of gap (crest).
 - Traffic control on the only road to the top of the mesa: need to open cut or long bore/directional drill.
 - Flow control required in PER to prevent vacuum.
 - Pressure zones of First Mesa.
 - State of current conditions at and FMCV East tank with respect to erosion.
 - Could route main around First Mesa to the West Tank prior to the East Tank in a similar alignment as the FMCV Treatment Alternative in the PER.
- Blending.
- Proposing water storage tanks (not line itemed in PER) at each well in lieu of having in-line boosters in series with the well pumps.
 - Additional configurations could be possible by having a tank at each well (e.g. water storage tanks being elevated such that flow to First Mesa can be done by gravity with a booster to serve Second Mesa.)
- Ensuring that the comments submitted to the Tribe by USDA RD on the Draft PER are addressed at the time of submittal.
 - Mixed treatment vs. solely Turquoise Trail wells vs. solely treatment.
- Updating PER line item costs such that they are as current as possible.

- Alternative of an elevated water storage tank near the Hopi Cultural Center at same overflow elevation as the Shungopavi elevated water storage tank so as to provide working pressures for DL5 homes on the top of Second Mesa.
- Lydell (with District support) will be working to prepare PERs to provide sewer services for DL5 homes along AZ Highway 264 and BIA Route 17, especially the homes that would be feasible to be piped from the proposed main.
 - See PH 10-T88.
- Advancement of Hopi Public Utility Authority.
 - Including identification of headquarters location, refinement of line items, and facility design.
- Ensure necessary permissions are obtained prior to construction.
- Working with the Tribe and Utilities to reach agreement on ownership, O&M aspects, billing, etc. of proposed facilities.
- Updating NEPA documentation as necessary.
- Surveying additional segments of proposed HAMP facilities.
- Pumps, controls, telemetry, and valve selection.
- Identify remaining HAMP scopes of work that can be constructed in a timely manner and immediately be effective as opposed to having no functional purpose until other portions of the distribution system are online.